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**Program Letter**

Bureau of Storage Tank Regulation

Date: December 2002

**Dispenser set back under the Aug 1, 2002 revised Comm 10 Rule**

A significant regulatory change has occurred associated with the dispenser setback in relation to aboveground storage tanks (ASTs) with the adoption of the 2000 edition of NFPA 30A. The significance of this change is result of the following:

- ♦ Wisconsin accepted vehicle fuel dispensing from aboveground tanks several years before national standards accepted the practice and subsequently developed its own system configuration requirements,
- ♦ National standards have changed over a period of time to address trends, technology and safety concerns, while Comm 10 stayed with a 1987 edition of the NFPA 30A standard for 15 years, and
- ♦ There is confusion with how underground pipe installation is associated with aboveground tanks and installer credentials.

**History:**

ILHR 10 (now Comm 10) was developed in 1989 –1990 prior to a national standard allowing vehicle fuel dispensing from an aboveground tank. Vaulted and double-wall tank technology had not entered the industry market until the early 1990s. ILHR 10 was promulgated with a 30-foot dispenser setback from a conventional UL 142 tank for retail sites and no setback for commercial non-public sites, contrary to a clear prohibition within national standards of vehicle fueling from ASTs. NFPA 30A first recognized vehicle fueling from ASTs in the 1993 standard that in practice was applied in the field in early 1994. The 1993 edition of NFPA 30A established a 50 foot dispenser setback for retail and fleet (non-retail) sites. Additionally, the 1993 standard allowed a reduced dispenser setback of 50% of the distance requirement at non fleet (retail) sites, and set no minimum setback distance at fleet (non retail) sites if fire resistant tanks or vaults were used. In 1993 fire resistant tanks were defined and classified under the construction standards that in the 2000 edition of NFPA 30A are recognized as “protected” tanks. Therefore, the 2000 edition has relaxed the requirement by recognizing UL 142 tanks as fire resistant that meet a lesser fire test standard than protected tanks, but have been tested to demonstrate a level of fire resistance above a minimal fabricated UL 142 tank.

**Discussion:**

The goal of the Comm 10 code revision process that has been ongoing since June 2000 is to create a code document that addresses fire safety concerns as well as applied technology through the use of national standards, rather than random or selective deviations from national standards referred to as “Wisconsinisms.” The recent national public awareness efforts from national petroleum related organizations and the media emphasizing the increase in static related fires originating during vehicle fueling activities is sufficient reason alone to bring the code into line with the national standard. The Petroleum Equipment Institute < <http://www.pei.org/> > has several areas of their web site dedicated to this concern.

While NFPA 30A applies to only highway licensed motor vehicles, Comm 10 addresses and applies NFPA 30A to a motor vehicle in a much broader scope as a “self-propelled motor driven vehicle which is used for moving people or products on land, water or air.” This broader application includes snowmobiles, boats and airplanes. Additionally, for farm and construction site application Comm 10 adopts NFPA 395 – Storage of Flammable and Combustible Liquids on

Farms and Isolated Sites, which refers tanks larger than 1,100 gallons to NFPA 30A for installation criteria.

The 2000 edition of NFPA adopted with the August 2002 effective date of the recent code revision states:

NFPA 30A-4.3.2.6 At fleet vehicle motor fuel dispensing facilities, no minimum separation shall be required between the dispensing device and a tank in a vault, a protected tank, or a fire-resistant tank.

The Comm 10 code development activity included reviewing associated standards, such as the International Fire Code (IFC) which does not recognize fire resistant tanks. The consensus resulted in modifying the NFPA 30A setbacks (NFPA 30A Table 4.3.2.4) to recognize certain existing Comm 10 setback distances and tank listings along with the prominent fire safety concerns. The resulting distances were developed after evaluating the characteristic of tanks and the respective occupancies associated with vehicle fueling ASTs over the past ten years under the former Comm 10 requirements. The setbacks were determined and modified with considerations of tank size, potential exposure, risk, etc.

**Comm 10 - Table 10.415**

Type of Tank	Individual Tank Capacity (gal)	Setback from nearest important building on same property (ft)	Setback from nearest retail dispenser (ft)	Setback from lot line that can be built upon, including the far side of a public way (ft)	Setback from near side of a public way (ft)	Minimum distance between tanks (ft)
Vaulted <sup>1</sup>	0-15,000	0	0	0	0	Separate compartment for each tank
Protected <sup>2</sup>	0-6,000	5	25	15	5	3
	6,001-12,000	15	25	25	15	3
Fire - Resistant <sup>3</sup>	0-2,000	25	25	25	25	3
	2,001-12,000	25	25	50	25	3
Other Code Complying Tanks	0-2,000	25	30	50	50	3
	2,001-12,000	50	50	100	50	3

Table 10.415 provides the required setback distances for ASTs with some modifications to the NFPA 30A setbacks. Two categories, "Fire resistant" and "Other" tanks were each divided into two capacity groups to allow a reduced setback for the smaller capacity tanks. The 30 ft. dispenser setback established in the initial ILHR 10 code was maintained for tanks 2,000 gallon capacity or less.

Following the same concept, an additional column, such as the column displayed to the right, is needed to reflect the fleet fueling setbacks.

Type of Tank	Individual Tank Capacity (gal)	Setback from nearest fleet dispenser (ft)
Vaulted <sup>1</sup>	0-15,000	0
Protected <sup>2</sup>	0-6,000	0
	6,001-12,000	0
Fire - Resistant <sup>3</sup>	0-2,000	0
	2,001-12,000	0
Other Code Complying Tanks	0-2,000	30
	2,001-12,000	50

There are several design specifications that are listed for the two tank categories meeting the NFPA zero dispenser setback requirement.

<b>Fire Resistant</b>	<b>Protected</b>
UL 2080	UL 2085
SwRI 97-04	SwRI 93-01 (with or without vehicle impact or projectile test)
Flameshield (See note below)	Fireguard (See note below)

Note: The Steel Tank Institute (STI) has developed two tank configurations that meet the NFPA criteria. A configuration under the name Flameshield is a design that meets the fire-resistant tank criteria and Fireguard meets the protected tank criteria.

The responsibilities and examination competencies associated with the tank installer credential were developed in the early 1990's and have continued to be applied with a focus or emphasis on practices of that day. This has resulted in the perception that all underground pipe must be installed by an individual credentialed as an underground tank installer. Further complicating the issue is the current Comm 10.415(9) requirement that mandates underground pipe for ASTs used for vehicle fueling:

(b) Piping shall be allowed to be aboveground within the dike or to go over the dike wall and enter the ground within 10 feet of the dike wall. All other piping shall be below ground.

### **Considerations:**

➤ A conflict in uniform application of terminology. The 2000 edition of NFPA 30A changed the application from "Automotive and Marine Service Stations" to "Motor Fuel Dispensing Facilities and Repair Garages." While there is not a definition in Comm 10 for "Service Station" Comm 10.10, Part 4, 10.41 and 10.415 appear to apply the term to retail facilities, although the single exception is Comm 10.43(3) which states "service station applies to residential marine craft fueling."

NFPA 30A is structured to address highway-licensed vehicles and marine craft. NFPA 395 addresses fuel dispensing associated with farm and construction sites. NFPA 407 addresses aircraft. Fuel dispensing into motorized equipment such as snowmobiles and ATVs are outside the scope of NFPA standards. Comm 10 applies to motorized vehicle that transports people or goods, including off-road recreational vehicles.

It appears that the 2000 edition of NFPA 30A has significant modifications from former editions. The term "public" is now used very seldom. For example, the 1996 edition section 2-1.3 included ". . .into fuel tanks of motor vehicles of the public . . ." This reference is eliminated from the corresponding language in section 4.2.2 in the 2000 edition. A section in the 2000 edition includes the phrase; "located on premises not normally accessible to the public."

Comm 10 also uses the term "public" sparingly and primarily in relation to site access. Comm 10 does not use the term "fleet" or "non fleet" which is used frequently in NFPA 30A. Nonretail is used in Comm 10 definitions, in reference to bulk liquid stock control and in the dispenser setback table. Definition (83) "Residential marine service station" means that portion of a one- or 2-family residential property where liquid fuels are stored in or dispensed for nonretail purposes from fixed equipment on land into the fuel tanks of self-propelled marine craft, including all facilities used for the storage, dispensing, and handling of flammable and combustible liquids.

The regulatory structure of NFPA 30A appears to be structured around two key definitions:

♦ 3.1.15 Motor Fuel Dispensing Facility.

That portion of a property where motor fuels are stored and dispensed from fixed equipment into the fuel tanks of motor vehicles or marine craft or into approved containers, including all equipment used in connection therewith.

♦ 3.1.15.1 Fleet Vehicle Motor Fuel Dispensing Facility.

A motor fuel dispensing facility at a commercial, industrial, governmental, or manufacturing property where motor fuels are dispensed into the fuel tanks of motor vehicles that are used in connection with the business or operation of that property by persons within the employ of such business or operation.

➤ Class of fuel application. The NFPA 30A dispenser setback is identical for both Class I flammable (gasoline) and Class II combustible (diesel) classification of fuels. However, people will argue that the risk factors are not identical in the sense that static related and other fires initiated during the fuel dispensing activity is predominant to Class I fuels such as gasoline.

➤ Associated adopted standards. There is also the point that the adopted standard PEI 200 – Recommended Practices for Installation of Aboveground Storage Systems for Motor Vehicle Fueling reflects the dispenser location at the tank for service station, marina and other refueling sites.

➤ NFPA 30 intent. Program technical staff understand the dispenser to tank setback established in NFPA 30A - 4.3.2.4 (and Table 4.3.2.4) to be for the purpose of limiting the impact of a fire/spill at the dispenser from causing a pool fire at the tank which could result in failure of the tank. Because a fire-rated tank (or protected or vaulted tank) has the ability to withstand a pool fire for at least a two hour period before failure, it is acceptable to have the dispensers with essentially a zero setback. The two-hour minimum failure time would give time for proper response to a fire at the dispenser and/or tank. Justification for restricting the reduced dispenser setback to fleet sites is two-fold:

- ♦ the risk of a fire is reduced since the person fueling will probably be better trained, and;
- ♦ the risk of a fire adversely impacting surrounding structures, vehicles, and personnel is reduced.

➤ Cost. A fire resistant tank costs approximately \$400 \$600 more than the conventional UL 142 tank. This cost is comparable to the cost of installing a traditional UL 142 tank with underground piping. Add the cost of leak detection for underground pipe and the savings is significantly more.



Example of fire resistant tank

**Conclusion:**

The initial ILHR 10 code allowing zero setback for fleet fueling was developed and implemented to provide an alternative in an attempt to address the cost and tank management concerns associated with the new UST regulations. The Wisconsin code allowance was at the time contrary to national standards. Currently Comm 10 is not in total step with the national consensus fire safety standards for aboveground vehicle fueling dispenser setbacks, but much closer to the NFPA 30A standard.

Although PEI 200 includes diagrams of tank mounted dispensers the standard points out (section 6.1 and appendix C) the dispenser setback distance requirements of the NFPA, BOCA, SBCC/SFPC and UFC codes.

The Department has concluded that it is in the best interests of uniform regulatory application and public safety to maintain dispenser setback dimensions in-line with the national standards.

Tanks associated with a plan approval prior to the August 1, 2002 effective date of the revised rule are not impacted by the subject code issue because a plan approval is recognized for two years after the approval date indicated on the plan.

The code requirement is not retroactive so existing systems are not affected by the new setback requirements.

Farm and construction tanks are an individual category and not considered in the same category as fleet tanks. Comm 10.455 (2)(a) Table 10.455, which does not include a dispenser setback, may be used in lieu of Table 10.415.

Tanks used to dispense fuel into containers only and not directly into vehicles are not required to comply with the dispenser setback distances.

The department has reviewed the Comm 5 tank installer requirements and determined that the responsibilities of the respective installer category do not specifically require underground pipe associated with an AST to be installed by an UST Installer. Both credentials address systems, rather than tank or pipe. While the specific language is different the technical areas are similar. Therefore, an individual credentialled as an Aboveground Tank System Installer is authorized to install underground pipe associated with an aboveground tank.